

WHAT IS CLAIMED IS:

1. A health management system for managing health of each user carrying a portable terminal, comprising:
 - a portable terminal which is arranged to be carried by a user and includes
 - a display screen,
 - radio communication means for accessing a predetermined radio communication network,
 - storage means storing personal information of the user, and
 - an input/output device for supporting health management for the user; and
 - a database including
 - personal information storage means storing the personal information about each user carrying said portable terminal,
 - medical information storage means storing information about a medical facility, a drugstore, a medicine, and said input/output device; and
 - 20 communication means for communicating with said portable terminal through the radio communication network,
 - wherein said radio communication means transmits part of the personal information stored in said storage means in starting to communicate with said database, and
 - wherein said database includes

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identification means for identifying the user of said portable terminal by collating the part of the information transmitted from said radio communication means with information stored in said personal

5 information storage means, and

emergency handling means which is activated upon transmission of a specific signal from said radio communication means for proving one of communication with a medical facility whose information is stored in
10 said medical information storage means and information stored in said medicine information storage means, which is necessary for the identified user for said portable terminal, in accordance with information transmitted from said radio communication means and to
15 provide said portable terminal.

2. The system according to claim 1, wherein the personal information includes information of a clinical chart of the user and prescription.

3. The system according to claim 1, wherein said radio communication means and said communication means perform encryption/decryption in accordance with a predetermined scheme in transmitting/receiving at least part of the personal information.

4. The system according to claim 1, wherein said portable terminal further comprises position information acquisition means for acquiring position information of said terminal, and said emergency

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handling means displays information about a route to a suitable medical facility or drugstore on said display screen on the basis of the position information transmitted from said position information acquisition
5 means.

5. The system according to claim 1, wherein said input/output device is an inhaler for discharging a medicine in the form of fine droplets to make the user inhale the droplets, and the information about said
10 input/output device includes information about handling of said inhaler.

6. The system according to claim 1, wherein said emergency handing means communicates with an emergency facility when no information is transmitted a
15 predetermined period of time after said emergency handling means is activated.

7. The system according to claim 1, wherein part of the information includes information about biometrical characteristics of the user.

20 8. A health management method of managing health of each user carrying a portable terminal, including the steps of:

providing a portable terminal carried by a user with a display screen, radio communication means for
25 accessing a predetermined radio communication network, storage means storing personal information of the user, and an input/output device for supporting health

management for the user;

providing a database for communicating with each portable terminal with personal information storage means storing the personal information about each user

5 carrying the portable terminal, medical information storage means storing information about a medical facility, a drugstore, a medicine, and the input/output device, and communication means for communicating with the portable terminal through the radio communication

10 network;

transmitting part of the personal information stored in the storage means by the radio communication means when starting to communicate with the database;

15 identifying in the database, the user of the portable terminal by collating the part of the information transmitted from the radio communication means with information stored in the personal information storage means; and

20 providing one of communication with a medical facility whose information is stored in the medical information storage means and information stored in the medicine information storage means, which is necessary for the identified user for the portable terminal when a specific signal is transmitted from the radio communication means.

25 9. The method according to claim 8, wherein the personal information includes information of a clinical

chart of the user and prescription.

10. The method according to claim 8, wherein the
radio communication means and the communication means
perform encryption/decryption in accordance with a
5 predetermined scheme in transmitting/receiving at least
part of the personal information.

11. The method according to claim 8, wherein the
portable terminal acquires position information of the
terminal, and information about a route to a suitable
10 medical facility or drugstore is displayed on the
display screen on the basis of the position information.

12. The method according to claim 8, wherein the
input/output device is an inhaler for discharging a
medicine in the form of fine droplets to make the user
15 inhale the droplets, and the information about the
input/output device includes information about handling
of the inhaler.

13. The method according to claim 8, wherein in the
database, when no information is transmitted a
20 predetermined period of time after a specific signal is
transmitted from the radio communication means,
communication is made to an emergency facility.

14. The method according to claim 8, wherein part of
the information includes information about biometrical
25 characteristics of the user.

15. A portable terminal which is arranged to be
carried by a user including:

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storage means storing personal information about the user, including information about a clinical chart of the user and prescription; and

5 an inhaler for discharging a medicine in the form of fine droplets and making the user inhale the droplets, including

discharging control means for controlling the inhaler in accordance with an inhalation profile of the user to discharge the medicine, thereby enabling the 10 user to inhale the medicine in accordance with the information of the prescription.

16. The terminal according to claim 15, further comprising parameter setting means for setting a parameter for discharging control by measuring an 15 inhalation profile of the user without discharging any medicine.

17. The terminal according to claim 16, wherein a medicine to be used and the parameter are stored in said storage means in association with each other.

20 18. The terminal according to claim 15, wherein said discharging control means includes a negative pressure sensor for detecting that the user starts inhaling.

19. The terminal according to claim 15, wherein the terminal further comprises input means, and allows said 25 inhaler to be operated only when information stored in said storage means coincides with information input from said input means.

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20. The terminal according to claim 15, wherein the terminal further comprises an authentication sensor for performing biometrical authentication with respect to the user, and allows said inhaler to be used only when
5 information about a biometrical characteristic of the user stored in said storage means coincides with information from said authentication sensor.
21. The terminal according to claim 15, wherein a usage log of said inhaler is stored in said storage
10 means.
22. The terminal according to claim 15, further comprising droplet detection means for monitoring discharged fine droplets of a medicine.
23. The terminal according to claim 15, further
15 comprising administration time notification means for notifying the user of a scheduled administration time of the medicine.
24. The terminal according to claim 22, further comprising an administration end notification means for
20 notifying the user that administration of the medicine is normally completed.
25. The terminal according to claim 15, wherein said storage means is a detachable memory card.
26. A control method for an inhaler for discharging a
25 medicine in the form of fine droplets and making a user inhale the droplets, said inhaler being provided for a portable terminal which is arranged to be carried by a

user and including storage means storing personal information about the user, including information about a clinical chart of the user and prescription,

5 said method including the step of controlling the discharge of the medicine in accordance with an inhalation profile of the user, thereby enabling the user to inhale the medicine in accordance with the information of the prescription.

27. The method according to claim 26, wherein a
10 parameter is set for discharging control by measuring an inhalation profile of the user without discharging any medicine.

28. The method according to claim 26, wherein a
medicine to be used and the parameter are stored in the
15 storage means in association with each other.

29. The method according to claim 26, wherein a
negative pressure sensor is used to detect that the
user starts inhaling.

30. The method according to claim 26, wherein input
20 means is further provided for the portable terminal,
and the inhaler is allowed to be operated only when
information stored in the storage means coincides with
information input from the input means.

31. The method according to claim 26, wherein an
25 authentication sensor for performing biometrical
authentication with respect to the user is further
provided for the portable terminal, and the inhaler is

allowed to be used only when information about a biometrical characteristic of the user stored in the storage means coincides with information from the authentication sensor.

5 32. The method according to claim 26, wherein a usage log of the inhaler is stored in the storage means.

33. The method according to claim 26, wherein discharged fine droplets of a medicine are monitored.

10 34. The method according to claim 26, wherein the user is notified of a scheduled administration time of the medicine.

35. The method according to claim 33, wherein the user is notified that administration of the medicine is normally completed.

15 36. A computer program for implementing the inhaler control method by using a computer, said inhaler being provided for a portable terminal which is arranged to be carried by a user and including storage means storing personal information about the user, including 20 information about a clinical chart of the user and prescription,

25 said computer program including program codes for implementing the step of controlling the discharge of the medicine in accordance with an inhalation profile of the user thereby enabling the user to inhale the medicine in accordance with the information of the prescription.

37. A storage medium for storing a program code for implementing the inhaler control method, said inhaler being provided for a portable terminal which is arranged to be carried by a user and including storage means storing personal information about the user, including information about a clinical chart of the user and prescription,

said storage medium storing the program codes for implementing the step of controlling the discharge of the medicine in accordance with an inhalation profile of the user, thereby enabling the user to inhale the medicine in accordance with the information of the prescription.

38. A health management system for managing health of each user carrying a portable terminal, comprising:

a portable terminal which is arranged to be carried by a user and includes

radio communication means for accessing a predetermined radio communication network,

20 storage means storing personal information of the user, and

an input/output device for supporting health management for the user;

a database including

25 personal information storage means storing the personal information about each user carrying said portable terminal,

medical information storage means storing information about a medical facility, a drugstore, a medicine, and said input/output device; and

communication means for communicating with
5 said portable terminal through the radio communication
network;

a medical facility terminal installed in each medical facility and connected to said database through a predetermined line; and

10 a drugstore terminal installed in each drugstore
and connected to said database through a predetermined
line.

wherein said database sets an access right for
each item of information stored in said personal
information storage means and medical information
storage means with respect to each of said portable
terminal, said medical facility terminal, and said
drugstore terminal.

39. The system according to claim 38, wherein the
20 personal information includes information of a clinical chart of the user and prescription.

40. The system according to claim 38, wherein said storage means is a detachable memory card, said medical facility terminal and said drugstore terminal have
25 slots in which said memory card is inserted, and the personal information can be updated from each of said terminals only when said memory card is inserted in the

slot.

41. The system according to claim 38, wherein said
input/output device is an inhaler for discharging a
medicine in the form of fine droplets and making the
5 user inhale the droplets, and the personal information
includes information of the medicine administered by
said inhaler.

42. The system according to claim 38, wherein said
input/output device includes a measurement device for
10 measuring a value indicating a physical condition of
the user.

43. The system according to claim 38, wherein the
personal information includes authentication data of
each user, and access from said portable terminal to
15 said database is permitted after personal
authentication is performed on the basis of the
authentication data.

44. The system according to claim 38, further
comprising a pharmaceutical company terminal installed
20 in a pharmaceutical company and connected to said
database through a predetermined line.

45. A health management method of managing health of
each user carrying a portable terminal using:

25 a portable terminal which is arranged to be
carried by a user and includes radio communication
means for accessing a predetermined radio communication
network, storage means storing personal information of

the user, and an input/output device for supporting health management for the user;

a database including personal information storage means storing the personal information about each user
5 carrying the portable terminal, medical information storage means storing information about a medical facility, a drugstore, a medicine, and the input/output device, and communication means for communicating with the portable terminal through the radio communication network;

a medical facility terminal installed in each medical facility and connected to the database through a predetermined line; and

a drugstore terminal installed in each drugstore
15 and connected to the database through a predetermined line,

wherein said method comprises the step of setting an access right in the database, for each item of information stored in the personal information storage means and medical information storage means with respect to each of the portable terminal, the medical facility terminal, and the drugstore terminal.

46. The method according to claim 45, wherein the personal information includes information of a clinical chart of the user and prescription.

47. The method according to claim 45, wherein the storage means is a detachable memory card, the medical

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facility terminal and the drugstore terminal have slots in which the memory card is inserted, and the personal information can be updated from each of the terminals only when the memory card is inserted in the slot.

5 48. The method according to claim 45, wherein the input/output device is an inhaler for discharging a medicine in the form of fine droplets and making the user inhale the droplets, and the personal information includes information of the medicine administered by
10 the inhaler.

49. The method according to claim 45, wherein the input/output device includes a measurement device for measuring a value indicating a physical condition of the user.

15 50. The method according to claim 45, wherein the personal information includes authentication data of each user, and access from the portable terminal to the database is permitted after personal authentication is performed on the basis of the authentication data.

20 51. A portable terminal which is arranged to be carried by a user, including:

storage means storing personal information about the user, including information about a clinical chart of the user and prescription;

25 an inhaler for discharging a medicine in the form of fine droplets and making the user inhale the droplets; and

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driving control means for changing a parameter associated with discharging of the medicine within a predetermined period of time in which the user executes the inhalation so as to enable the user to efficiently
5 inhale the medicine in accordance with the information of the prescription.

52. The terminal according to claim 51, wherein the medicine is discharged in a plurality of steps within the predetermined period of time in which the
10 inhalation is executed.

53. The terminal according to claim 51, further comprising a sensor for detecting an inhalation rate of the user, and said driving control means changes the parameter in accordance with a signal from said sensor.

15 54. The terminal according to claim 51, wherein a medicine and a timing at which the parameter is changed are stored in said storage means in association with each other.

55. The terminal according to claim 51, wherein the
20 parameter includes a discharging speed of the droplets.

56. The terminal according to claim 51, wherein the parameter includes a driving frequency.

57. The terminal according to claim 51, wherein the parameter includes a size of the droplet.

25 58. The terminal according to claim 51, wherein the parameter includes a main droplet/sub-droplet ratio of the droplets.

59. The terminal according to claim 51, wherein the parameter includes a discharge scheme.

60. The terminal according to claim 51, wherein said inhaler comprises a discharge head for discharging a medicine by using heat energy.

61. The terminal according to claim 51, wherein said storage means is a detachable memory card.

62. A method of driving an inhaler of a portable terminal which is arranged to be carried by a user, comprising the steps of:

providing storage means for storing personal information about the user, including information about a clinical chart of the user and prescription, and an inhaler for discharging a medicine in the form of fine droplets and making the user inhale the droplets, with the portable terminal; and

changing a parameter associated with discharging of the medicine within a predetermined period of time in which the user executes the inhalation so as to enable the user to efficiently inhale the medicine in accordance with the information of the prescription.

63. The method according to claim 62, wherein the medicine is discharged in a plurality of steps within the predetermined period of time in which the inhalation is executed.

64. The method according to claim 62, wherein an inhalation rate of the user is detected, and the

parameter is changed in accordance with the detected inhalation rate.

65. The method according to claim 62, wherein a medicine and a timing at which the parameter is changed
5 are stored in the storage means in association with each other.

66. The method according to claim 62, wherein the parameter includes a discharging speed of the droplets.

67. The method according to claim 62, wherein the
10 parameter includes a driving frequency.

68. The method according to claim 62, wherein the parameter includes a size of the droplet.

69. The method according to claim 62, wherein the parameter includes a main droplet/sub-droplet ratio of
15 the droplets.

70. The method according to claim 62, wherein the parameter includes a discharge scheme.

71. A prescription determination support system including:

20 a memory card storing personal information including information about a clinical chart of each user and prescription;

a database having medical information storage means storing information about correspondence between
25 a symptom and a medicine prescription; and

a medical facility terminal which is installed in each medical facility, has a slot in which said memory

card is inserted, and is connected to said database through a predetermined line, the prescription determination support system being adapted to support determination of a prescription for the user carrying said memory card at said medical facility terminal,

wherein when said memory card of the user is inserted into said medical facility terminal, said terminal presents information about a prescription suitable for the user and a medicine to be administered on the basis of the personal information about the user and the information stored in said medical information storage means.

72. The system according to claim 71, wherein when
the user has a plurality of symptoms and there are a
plurality of prescriptions suitable for the user and
medicines to be administered, said medical facility
terminal presents each of the prescriptions and each of
the medicines to be administered, together with a
corresponding one of the symptoms.

20 73. The system according to claim 71, wherein when
the user has a plurality of symptoms and there are a
plurality of prescriptions suitable for the user and
medicines to be administered, said medical facility
terminal presents the respective prescriptions and the
25 respective medicines to be administered in descending
order of expected effect.

74. The system according to claim 71, wherein the

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personal information includes information about DNA, and said medical facility terminal presents the information about the prescription and medicine to be administered on the basis of the information.

5 75. The system according to claim 71, wherein the personal information includes authentication data of each user, and access to the personal information is permitted when personal authentication is performed on the basis of the authentication data.

10 76. A prescription determination support method of supporting determination of a prescription for a user carrying a memory card at a medical facility terminal by using:

the memory card storing personal information
15 including information about a clinical chart of each user and prescription;

a database having medical information storage means storing information about correspondence between a symptom and a medicine prescription; and

20 the medical facility terminal which is installed in each medical facility, has a slot in which the memory card is inserted, and is connected to the database through a predetermined line,

wherein said method comprises the step of
25 presenting information about a prescription suitable for the user and a medicine to be administered on the basis of the personal information about the user and

the information stored in the medical information storage means, when the memory card of the user is inserted into the medical facility terminal.

77. The method according to claim 76, wherein when
5 the user has a plurality of symptoms and there are a plurality of prescriptions suitable for the user and medicines to be administered, each of the prescriptions and each of the medicines to be administered are presented, together with a corresponding one of the
10 symptoms.

78. The method according to claim 76, wherein when the user has a plurality of symptoms and there are a plurality of prescriptions suitable for the user and medicines to be administered, the respective
15 prescriptions and the respective medicines to be administered are presented in descending order of expected effect.

79. The method according to claim 76, wherein the personal information includes information about DNA,
20 and the information about the prescription and medicine to be administered are presented on the basis of the information.

80. The method according to claim 76, wherein the personal information includes authentication data of
25 each user, and access to the personal information is permitted when personal authentication is performed on the basis of the authentication data.

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81. A computer program for implementing the prescription determination support method through a computer, by using:

the memory card storing personal information
5 including information about a clinical chart of each user and prescription;

a database having medical information storage means storing information about correspondence between a symptom and a medicine prescription; and

10 the medical facility terminal which is installed in each medical facility, has a slot in which the memory card is inserted, and is connected to the database through a predetermined line,

wherein said computer program includes program codes for implementing the step of presenting information about a prescription suitable for the user and a medicine to be administered, on the basis of the personal information about the user and the information stored in the medical information storage means, when 20 the memory card of the user is inserted into the medical facility terminal.

82. A storage medium for storing a program code for implementing the prescription determination support method by using:

25 the memory card storing personal information including information about a clinical chart of each user and prescription;

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a database having medical information storage means storing information about correspondence between a symptom and a medicine prescription; and

the medical facility terminal which is installed
5 in each medical facility, has a slot in which the memory card is inserted, and is connected to the database through a predetermined line,

wherein said storage medium stores program codes for implementing the step of presenting information
10 about a prescription suitable for the user and a medicine to be administered, on the basis of the personal information about the user and the information stored in the medical information storage means, when the memory card of the user is inserted into the
15 medical facility terminal.

83. An inhaler for discharging a medicine in the form of fine droplets and enabling a user to inhale the medicine, comprising:

storage means storing personal information about
20 the user including information about a prescription for the user;

a tank which contains the medicine and has a code for identifying a type of contained medicine;

a discharge head for discharging a medicine
25 supplied from said tank in the form of fine droplets; and

discharge permission means for permitting

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operation of said discharge head only when a collation result on the medicine contained in said tank and a medicine written on the prescription indicates coincidence upon reading the code.

5 84. The inhaler according to claim 83, wherein said tank and said discharge head are integrally formed.

85. The inhaler according to claim 83, wherein said discharge permission means inhibits operation of said discharge head with respect to a usage pattern
10 different from a formula written in the prescription.

86. The inhaler according to claim 83, further comprising input means, and said discharge permission means permits operation of said discharge head only when the information stored in said storage means
15 coincides with the information input from said input means.

87. The inhaler according to claim 83, further comprising an authentication sensor for performing biometrical authentication with respect to the user,
20 and said discharge permission means permits operation of said discharge head only when a biometrical characteristic of the user stored in said storage means coincides with information from said authentication sensor.

25 88. The inhaler according to claim 83, wherein the code is electrically readable.

89. The inhaler according to claim 83, wherein the

code is optically readable.

90. The inhaler according to claim 83, further comprising means for inhibiting reuse of said tank when inhaling operation is performed a predetermined number
5 of times.

91. The inhaler according to claim 83, further comprising means for inhibiting reuse of said discharge head when inhaling operation is performed a predetermined number of times.

10 92. A discharge head control method for an inhaler being provided with storage means for storing personal information about a user including information about a prescription for the user, a tank which contains the medicine and has a code for identifying a type of
15 contained medicine, and a discharge head for discharging a medicine supplied from the tank in the form of fine droplets,

wherein said method comprises the steps of:

collating the medicine contained in the tank with
20 a medicine written on the prescription upon reading the code; and

enabling operation of the discharge head only when the collation result indicates coincidence of the both.

25 93. The method according to claim 92, further comprising the step of inhibiting the operation of the discharge head with respect to a usage pattern

different from a formula written in the prescription.

94. The method according to claim 92, wherein the inhaler further comprises input means, and said method further comprises the step of permitting the operation of the discharge head only when the information stored in the storage means coincides with the information input from the input means.

5 95. The method according to claim 92, wherein the inhaler further comprises an authentication sensor for performing biometrical authentication with respect to the user, and said method further comprises the step of permitting the operation of the discharge only when a biometrical characteristic of the user stored in the storage means coincides with information from the 10 authentication sensor.

15 96. The method according to claim 92, further comprising the step of inhibiting reuse of the tank when inhaling operation is performed a predetermined number of times.

20 97. The method according to claim 92, further comprising the step of inhibiting reuse of the discharge head when inhaling operation is performed a predetermined number of times.

98. A computer program for implementing the discharge 25 head control method, said inhaler being provided with storage means for storing personal information about a user including information about a prescription for the

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user, a tank which contains the medicine and has a code for identifying a type of contained medicine, and a discharge head for discharging a medicine supplied from the tank in the form of fine droplets,

5 wherein said computer program comprises program codes for implementing the steps of:

 collating the medicine contained in the tank with a medicine written on the prescription upon reading the code; and

10 enabling operation of the discharge head only when the collation result indicates coincidence of the both.

99. A storage medium for storing a program code for implementing the discharge head control method, said
15 15 inhaler being provided with storage means for storing personal information about a user including information about a prescription for the user, a tank which contains the medicine and has a code for identifying a type of contained medicine, and a discharge head for
20 20 discharging a medicine supplied from the tank in the form of fine droplets,

 wherein said storage medium stores program codes for implementing the steps of:

 collating the medicine contained in the tank with
25 25 a medicine written on the prescription upon reading the code; and

 enabling operation of the discharge head only

when the collation result indicates coincidence of the both.

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